

**AMENDMENT AND RESPONSE**

Serial No.: 09/775,224

Filing Date: February 1, 2001

Title: MONITOR, CONTROL AND CONFIGURATION OF FIBER NODE VIA CABLE MODEM

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Attorney Docket No. 100.166US01

**REMARKS**

Applicant has reviewed the Office Action mailed on March 25, 2004 as well as the art cited. Claims 1-31 are pending in this application.

**Information Disclosure Statement**

Applicant respectfully requests that a copy of the 1449 form, listing all references that were submitted with the Information Disclosure Statement filed on March 10, 2004 marked as being considered and initialed by the Examiner, be returned with the next official communication.

**Rejections Under 35 U.S.C. § 103**

Claims 1-31 were rejected under 35 USC § 103(a) as being unpatentable over Naegeli (U.S. Patent No. 6,574,797) in view of Nazarathy (U.S. Patent No. 6,490,727). Applicant respectfully traverses this rejection.

Regarding claims 1 and 3-6, the Examiner asserts that "Naegeli discloses in figure 2, a HFC network with a CMTS and headend 202, a cable modem 120 attached to the HFC network transmits an upstream signal, narrow bandwidth detector examines the signal for noise and then transmits downstream a control command to the cable modem to switch to an alternate upstream channel if the noise level exceeds a certain threshold (column 3, lines 1-31, column 5, line 61-column 6, line 11, column 8, line 29- column 9, line 26, column 10, line 35-column 12, line 10)." The Examiner correctly notes that "Naegeli does not teach a modem situated within a fibre node." Further, the Examiner asserts that "Nazarathy discloses in Figure 20, a fibre node 452-1 in which modems 456-1 are situated within an HFC network (column 35, line 35-column 36, line 30). Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the monitoring and switching apparatus of Naegeli to situate a modem within the fibre node, as taught by Nazarathy thus enabling the end user to utilize a less noisy channel."

**Claim 1**

Claim 1 is directed to a hybrid fiber-coax network. The network includes a head end, at least one fiber node in two-way communication with the head end, and a cable modem located

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within the fiber node, wherein the cable modem provides a communication channel adapted to transmit at least one informational signal that is indicative of a condition of the fiber node to the head end and that is adapted to receive at least one control signal from the head end.

There is no motivation or suggestion in either reference to modify Naegeli to include the modem bank 456-1 of Nazarathy. Applicant further asserts that neither reference alone or in combination teaches or suggests the hybrid fiber-coax network of claim 1. In particular, neither reference alone or in combination teaches or suggests a cable modem located within a fiber node that provides a communication channel adapted to transmit at least one information signal indicative of a condition of the fiber node as found in claim 1. In contrast to claim 1, cable modem 120 is not located within a fiber node as found in claim 1. Further, neither modem bank 456-1 nor cable modem 120 transmits at least one information signal indicative of a condition of the fiber node as found in claim 1. Cable modem 120 is not situated in a fiber node and does not teach or suggest transmitting information signals indicative of a condition of fiber node 108. Modem bank/gatcway 456-1 "is essentially a layer 2 bridge or layer 3 switch or router connecting on one side to the digital optical transmitter 418 and receiver 420 and on the other side to a data LAN/WAN" and there is no teaching or discussion in Nazarathy of transmitting information signals indicative of a condition of deep fiber node 452-1. Further, does not find how the Examiner's assertion of including a modcm bank 456-1 of Nazarathy within the fibre node 102 of Naegeli enables the end user to utilize a less noisy channel supports the current rejection. Applicant asserts that modifying Naegeli to include a layer 2 bridge or layer 3 switch (modem bank 456-1), as stated in Nazarathy, does not result in a network having a fiber node with a cable modem that transmits information signals indicative of a condition of the fiber node as found in claim 1. As a result, the Examiner has failed to establish a prima facie case of obviousness. Claim 1 should be allowed.

In addition, the Examiner refers to "the monitoring and switching apparatus" of Naegeli. Applicant finds that this is unclear and requests that the Examiner clarify this statement to indicate what the monitoring and switching apparatus of Naegeli refers to.

Claims 2-6 depend from and further define allowable claim 1 and for at least the reasons stated above claims 2-6 should also be allowed. Since the Applicant believes, claims 2-6 are allowable for the above reasons, Applicant may not have put forth responses to additional

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rejections to said claims at this time. However, the Applicant reserves the right to address said additional rejections to said claims if a further response is required.

**Claim 7**

Claim 7 is directed to a hybrid fiber-coax network. The network includes at least one fiber node including at least one controllable device, a monitor-and-control circuit located within the fiber node that is adapted to receive at least one informational signal from the controllable device indicative of a condition of the controllable device, that is adapted to transmit the informational signal, that is adapted to receive at least one control signal, and that is adapted to transmit the control signal to the controllable device to alter the condition of the controllable device and a cable modem located within the fiber node, wherein the cable modem provides a communication channel that is adapted to receive the informational signal from the monitor-and-control circuit, that is adapted to transmit the informational signal, that is adapted to receive the control signal, and that is adapted to transmit the control signal to the monitor-and-control circuit. The network further includes a head end, a cable modem transmission system at the head end that is adapted to receive the informational signal from the cable modem, that is adapted to transmit the informational signal, that is adapted to receive the control signal, and that is adapted to transmit the control signal to the cable modem, and a monitor-and-control subsystem at the head end that is adapted to receive the informational signal transmitted by the cable modem transmission system, that is adapted to evaluate the informational signal, and that is adapted to transmit the control signal, based on the evaluation, to the cable modem transmission system.

Regarding claims 7, 11, and 12 the Examiner asserts that "Naegeli discloses in figure 2, a HFC network with a CMTS and headend 202, a cable modem 120 attached to the HFC network transmits an upstream signal, narrow bandwidth detector examines the signal for noise and then transmits downstream a control command to the cable modem to switch to an alternate upstream channel if the noise level exceeds a certain threshold (column 3, lines 1-31, column 5, line 61-column 6, line 11, column 8, line 29- column 9, line 26, column 10, line 35-column 12, line 10.)"

The Examiner correctly notes that "Naegeli does not teach a modem situated within a fibre node." Further, the Examiner asserts that "Nazarathy discloses in Figure 20, a fibre node 452-1 in which modems 456-1 are situated within an HFC network (column 35, line 35-column 36, line 30). Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the monitoring and switching apparatus of Naegeli to situate a modem

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within the fibre node, as taught by Nazarathy thus enabling the end user to utilize a less noisy channel and to selectively enable and disable a link in order to route around a failure on a network."

Further the Examiner takes official notice that it is well known in the art for an administrator at a network operation center to selectively enable and disable links in a network via a modem. Applicant respectfully traverses the Examiner's assertions and requests that the Examiner cite a reference in support of his position in accordance with MPEP § 2144.03. Further applicant requests that the Examiner clearly establish the association of the asserted well known statement with the limitations of claim 7.

With regard to claim 7, the applicant refers the Examiner to the arguments presented above with respect to claim 1. Further, neither reference alone or in combination teaches or suggests a fiber node including at least one controllable device as found in claim 7 nor a monitor-and-control circuit located within the fiber node that is adapted to receive at least one informational signal from the controllable device indicative of a condition of the controllable device, transmit the informational signal, receive at least one control signal and transmit the control signal to the controllable device to alter the condition of the controllable device as found in claim 7. Further the references alone or in combination do not teach or suggest the cable modem providing a communication channel that is adapted to receive the informational signal from the monitor-and-control circuit, transmit the informational signal, receive the control signal, and transmit the control signal to the monitor-and-control circuit as found in claim 7. The Examiner does not address and the references do not teach or suggest a cable modem transmission system at the head end that receives the informational signal from the cable modem, transmits the informational signal, receives the control signal, and transmits the control signal to the cable modem. In addition, the references alone or in combination do not teach or suggest a monitor-and-control subsystem at the head end that is adapted to receive the informational signal transmitted by the cable modem transmission system, that evaluates the informational signal, and transmits the control signal, based on the evaluation, to the cable modem transmission system as found in claim 7.

As a result, the Examiner has failed to establish a prima facie case of obviousness. Claim 7 should be allowed.

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Claims 8-12 depnd from and further define allowable claim 7 and for at least the reasons stated above claims 8-12 should also be allowed. Since the Applicant believes, claims 8-12 are allowable for the above reasons, Applicant may not have put forth responses to additional rejections to said claims at this time. However, the Applicant reserves the right to address said additional rejections to said claims if a further response is required.

**Claim 13**

Applicant refers the Examiner to the arguments presented above with respect to claims 1-12 and for at least those reasons claim 13 is also allowable.

The references alone or in combination do not teach or suggest at least one fiber node including at least one controllable device, a monitor-and-control circuit located within the fiber node, the monitor-and-control circuit having at least one first input-output and a second input-output, wherein the first input-output of the monitor-and-control circuit receives an informational signal from the controllable device that is indicative of a condition of the controllable device or a cable modem located within the fiber node, the cable modem having an input, output, and input-output, wherein the cable-modem input-output receives the informational signal from the second input-output of the monitor-and-control circuit as found in claim 13. Further, the references alone or in combination do not teach or suggest a cable modem transmission system at the head end that has an input that receives the informational signal from the output of the cable modem, the cable modem transmission system having an output and an input-output nor a monitor-and-control subsystem at the head end that has an input-output, the monitor-and-control subsystem input-output receiving the informational signal from the input-output of the cable modem transmission system, wherein the monitor-and-control subsystem evaluates the informational signal, whereby evaluating the condition of the controllable device, and transmits at least one control signal based on the evaluation through its input-output to the input-output of the cable modem transmission system, wherein the control signal is transmitted from the output of the cable modem transmission system to the input of the cable modem, wherein the control signal is transmitted to the second input-output of the fiber-node monitor-and-control circuit, wherein the first input-output of the monitor-and-control circuit transmits the control signal to the controllable device to alter its operation based on the evaluation of the monitor-and-control subsystem as found in claim 13.

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As a result, the Examiner has failed to establish a *prima facie* case of obviousness. Claim 13 should be allowed.

**Claims 14 - 18**

Applicant refers the Examiner to the arguments presented above with respect to claims 1-13 and for at least those reasons claims 14-18 are also allowable.

**Claim 19**

Applicant refers the Examiner to the arguments presented above with respect to claims 1-18 and for at least those reasons claim 19 is also allowable.

Further, the references alone or in combination do not teach or suggest a method for monitoring and controlling at least one fiber node of a hybrid fiber-coax network where the fiber node is communicatively coupled to a head end of the hybrid fiber-coax network as found in claim 19. The references do not teach or suggest receiving at least one informational signal that is indicative of a condition of the fiber node at a cable modem located in the fiber node, transmitting the informational signal from the cable modem to the head end, or evaluating the informational signal at the head-end as found in claim 19. In addition, the references alone or in combination the references do not teach or suggest transmitting at least one control signal based on the evaluation from the head end to the cable modem and using the control signal to alter the operation of the fiber node as found in claim 19. As a result, the Examiner has not established a *prima facie* case of obviousness and claim 19 should be allowed.

**Claim 20**

Applicant refers the Examiner to the arguments presented above with respect to claims 1-19 and for at least those reasons claim 20 is also allowable.

The references alone or in combination do not teach or suggest a method for monitoring and controlling at least one fiber node of a hybrid fiber-coax network where the fiber node is communicatively coupled to a head end of the hybrid fiber-coax network as found in claim 20. The references do not teach or suggest transmitting an informational signal from at least one controllable device in the fiber node that is indicative of a condition of the controllable device to a monitor-and-control circuit located in the fiber node, transmitting the informational signal from the monitor-and-control circuit to a cable modem located in the fiber node or transmitting the informational signal from the cable modem to a cable modem transmission system at the head end. The references do not teach or suggest transmitting the informational signal from the cable

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modem transmission system to a monitor-and-control subsystem at the head end, evaluating the informational signal using the monitor-and-control subsystem, transmitting at least one control signal based on the evaluation from the monitor-and-control subsystem to the cable modem transmission system, transmitting the control signal from the cable modem transmission system to the cable modem, transmitting the control signal from the cable modem to the monitor-and-control circuit and transmitting the control signal to the controllable device to control its operation as found in claim 20. As a result, the Examiner has not established a prima facie case of obviousness and claim 20 should be allowed.

**Claim 21**

Applicant refers the Examiner to the arguments presented above with respect to claims 1-20 and for at least those reasons claim 21 is also allowable.

Neither reference alone or in combination teaches or suggests a method for identifying a problematic line out of at least two lines of a fiber node of a hybrid fiber-coax network where the fiber node is communicatively coupled to a head end of the hybrid fiber-coax network as found in claim 21. The references do not teach or suggest receiving a signal at the head end that is indicative of a problematic condition in one of the lines of the fiber node, transmitting control signals from the head end to a cable modem located in the fiber node, in response to receiving the signal, that sequentially disable and enable the respective lines one at a time and monitoring further signals at the head end to determine the effect of disabling the respective lines on the occurrence of the problematic condition as found in claim 21. As a result, the Examiner has not established a prima facie case of obviousness and claim 21 should be allowed.

Claims 22-27 depend from and further define allowable claim 21 and for at least the reasons stated above 22-27 should also be allowed. Since the Applicant believes, claims 22-27 are allowable for at least the above reasons, Applicant may not have put forth responses to additional rejections to said claims at this time. However, the Applicant reserves the right to address said additional rejections to said claims if a further response is required.

**Claim 28**

Applicant refers the Examiner to the arguments presented above with respect to claims 1-27 and for at least those reasons claim 28 is also allowable.

Neither reference alone or in combination teaches or suggests identifying a problematic line out of at least two lines of a fiber node of a hybrid fiber-coax network where the fiber node

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is communicatively coupled to a head end of the hybrid fiber-coax network as found in claim 28.

Further the references do not teach or suggest receiving a signal that is indicative of a problematic condition in one of the lines of the fiber node at a monitor-and-control subsystem located at the head end, transmitting control signals from the monitor-and-control subsystem to a cable modem transmission system, transmitting the control signals from the cable modem transmission system to a cable modem in the fiber node, transmitting the control signals from the cable modem to a monitor-and-control circuit in the fiber node, using the control signals to sequentially disable and enable the respective lines one at a time and monitoring further signals to determine the effect of disabling the respective lines on the occurrence of the problematic condition using the monitor-and-control subsystem as found in claim 28.

The Examiner correctly notes that Naegeli does not disclose transmitting a signal to a cable modem to sequentially enable or disable a number of lines or a modem situated within a fibre node. The Examiner suggests modifying Naegeli with Nazarathy. Nazarathy does not remedy the shortcomings of Naegeli. "The fibre node 452-1 in which modems 456-1 is situated within an HFC network" as relied upon by the Examiner does not remedy the shortcomings. As a result the Examiner has not established a *prima facie* case of obviousness and claim 28 should be allowed.

Claims 29-31 depend from and further define allowable claim 28 and for at least the reasons stated above 29-31 should also be allowed. Since the Applicant believes, claims 29-31 are allowable for at least the above reasons, Applicant may not have put forth responses to additional rejections to said claims at this time. However, the Applicant reserves the right to address said additional rejections to said claims if a further response is required.

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**CONCLUSION**

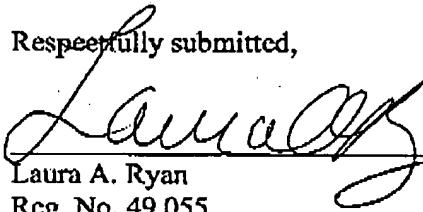
Applicant respectfully submits that claims 1-31 are in condition for allowance and notification to that effect is earnestly requested. If necessary, please charge any additional fees or credit overpayments to Deposit Account No. 502432.

If the Examiner has any questions or concerns regarding this application, please contact the undersigned at (612) 332-4720.

Respectfully submitted,

Date: 26 July 2004

Laura A. Ryan  
Reg. No. 49,055



Attorneys for Applicant  
Fogg and Associates, LLC  
P.O. Box 581339  
Minneapolis, MN 55458-1339  
T - (612) 332-4720  
F - (612) 332-4731